

The Claims

1-3. (Canceled).

4. (Previously presented) A method comprising:

displaying, via a graphical user interface (GUI) at a computing device, a graphical representation of a network including a first media aggregation manager and a second media aggregation manager, wherein the first and second media aggregation managers are configured to:

establish a single reservation protocol session that reserves bandwidth from a plurality of routers along a first of a plurality of paths between the first and second media aggregation managers;

allocate the reserved bandwidth among a plurality of application sessions, each of which is between one of a first plurality of communication devices coupled to the first media aggregation manager and one of a second plurality of communication devices coupled to the second media aggregation manager;

the computing device displaying, via the GUI, a first projected link utilization illustrating predicted bandwidth usage for the plurality of routers along the first path; and

in response to receiving input via the GUI selecting the first projected link utilization, the computing device instructing the first and second media aggregation managers to establish the single reservation protocol session by reserving bandwidth from each of the plurality of routers along the first path.

5. (Previously presented) The method of claim 4, wherein the established reservation protocol session is a resource reservation protocol (RSVP) session.

6-23. (Canceled).

24. (Previously presented) A non-transitory machine-readable storage medium having stored thereon instructions execution of which, by a computing device, causes the computing device to perform operations comprising:

displaying, via a graphical user interface (GUI), a graphical representation of a network including a first media aggregation manager and a second media aggregation manager, wherein the first and second media aggregation managers are configured to:

establish a single reservation protocol session that reserves bandwidth from a plurality of routers along a first of a plurality of paths between the first and second media aggregation managers;

allocate the reserved bandwidth among a plurality of application sessions, each of which is between one of a first plurality of communication devices coupled to the first media aggregation manager and one of a second plurality of communication devices coupled to the second media aggregation manager;

displaying, via the GUI, a first projected link utilization illustrating predicted bandwidth usage for the plurality of routers along the first path; and

in response to receiving input via the GUI selecting the first projected link utilization, instructing the first and second media aggregation managers to establish the

single reservation protocol session by reserving bandwidth from each of the plurality of routers along the first path.

25. (Previously presented) The non-transitory machine-readable storage medium of claim 24, wherein the established reservation protocol session is a resource reservation protocol (RSVP) session.

26-71. (Canceled).

72. (Previously presented) The method of claim 4, wherein the first projected link utilization is determined based on a predicted number of users of the first and second pluralities of communication devices utilizing the established reservation protocol session.

73. (Previously presented) The method of claim 4, further comprising displaying, via the GUI, a second projected link utilization illustrating predicted bandwidth usage for a plurality of routers along a second path, and wherein the second projected link utilization indicates that the predicted bandwidth usage along the second path exceeds available bandwidth along the second path.

74. (Previously presented) The non-transitory machine-readable storage medium of claim 24, wherein the operations further include displaying one or more additional projected link utilizations illustrating predicted bandwidth for a plurality of

additional routers along one or more others of the plurality of paths, wherein the first projected link utilization and the one or more additional projected link utilizations are displayed in a prioritized order based upon one or more factors.

75. (Previously presented) The non-transitory machine-readable storage medium of claim 74, wherein the one or more factors include one or more of the following:

- a number of nodes in a path;
- total available bandwidth for a path;
- available communications bandwidth on a path;
- propagation speed between nodes that make up a path; or
- physical length of travel between nodes that make up a path.

76. (Previously presented) A method comprising:
displaying, via a graphical user interface (GUI) at a computing device, a representation of a network including a first network device and a second network device, wherein the first and second network devices are configured to:

establish a single reservation protocol session that reserves bandwidth from a plurality of routers along a first of a plurality of paths between the first and second network devices;

allocate the reserved bandwidth among a plurality of application sessions, each of which is between one of a first plurality of communication devices

coupled to the first network device and one of a second plurality of communication devices coupled to the second network device;

the computing device displaying, via the GUI, a first projected link utilization illustrating predicted bandwidth usage for the plurality of routers along the first path; and

in response to receiving input via the GUI selecting the first projected link utilization, the computing device instructing the first and second network devices to establish the single reservation protocol session by reserving bandwidth from each of the plurality of routers along the first path.

77. (Previously presented) The method of claim 76, wherein the established reservation protocol session is a resource reservation protocol (RSVP) session.

78. (Previously presented) The method of claim 76, further comprising:

after the reservation protocol session has been established, receiving additional input via the GUI requesting that the established reservation protocol session be de-allocated; and

in response to receiving the additional input, instructing the first and second network devices to de-allocate the established reservation protocol session.

79. (Previously presented) The method of claim 76, wherein the first projected link utilization is determined based on a predicted number of users of the first and second pluralities of communication devices utilizing the established reservation protocol session.

80-83. (Canceled).

84. (Currently amended) A non-transitory machine-readable storage medium having stored thereon instructions execution of which, by a computing device, causes the computing device to perform operations comprising:

displaying, via a graphical user interface (GUI), a graphical representation of a network including a first network device at an edge of a first local area network and a second network device at an edge of a second local area network, wherein the first local area network includes a first set of terminals running a first set of local applications, wherein the second local area network includes a second set of terminals running a second set of local applications, wherein the first set of terminals is coupled to the second set of terminals via a plurality of paths including a first path, and wherein the first and second networking devices are configured to:

act as a signaling and control proxy for the first and second local area networks, respectively;

serve as reservation session aggregation points on behalf of the first and second sets of terminals, respectively;

displaying, via the GUI, a first projected link utilization illustrating predicted bandwidth usage for a plurality of routers along the first path; and

in response to receiving input via the GUI selecting the first projected link utilization, instructing the first and second network devices to establish a single

reservation protocol session by reserving bandwidth from each of the plurality of routers along the first path.

85. (Previously presented) The non-transitory machine-readable storage medium of claim 84, wherein the established reservation protocol session is a resource reservation protocol (RSVP) session.

86. (Previously presented) The non-transitory machine-readable storage medium of claim 84, wherein the operations further include displaying, via the GUI, a second projected link utilization illustrating predicted bandwidth usage for a plurality of routers along a second of the plurality of paths.

87. (Currently amended) The non-transitory machine-readable storage medium of claim [[84]]86, wherein the first and second projected link utilizations are displayed in a prioritized order based on one or more of the following factors:

a number of nodes in the first path or the second path;

total available bandwidth for the first path or the second path;

available communications bandwidth on the first path or the second path;

propagation speed between nodes that make up the first path or the second path;

or

physical length of travel between nodes that make up the first path or the second path.

88. (Previously presented) The method of claim 4, wherein one of the plurality of application sessions is an Internet telephony session.

89. (Previously presented) The non-transitory machine-readable storage medium of claim 24, wherein one of the plurality of application sessions is an Internet telephony session.

90. (Previously presented) The method of claim 76, wherein one of the plurality of application sessions is an Internet telephony session.

91. (Canceled).

92. (Previously presented) The non-transitory machine-readable storage medium of claim 84, wherein each of the first and second sets of local applications includes an Internet telephony application, and wherein each of the first and second sets of terminals includes at least one telephone device.

93-97. (Canceled).

98. (Previously presented) A non-transitory machine-readable storage medium having stored thereon instructions execution of which, by a first media aggregation device within a network, causes the first media aggregation device to perform operations comprising:

receiving a request from a computer system to establish a single reservation protocol session between the first media aggregation device and a second media aggregation device within the network, wherein the request is received from a program running on the computer system that displays, via a graphical user interface (GUI), a projected link utilization illustrating predicted bandwidth usage for a plurality of routers along a first path of a plurality of paths between the first and second media aggregation devices, and wherein the program permits a user to select, via the GUI, the projected link utilization in order to cause the reservation protocol session to be established;

in response to receiving the request, establishing the single reservation protocol session by reserving bandwidth from a plurality of routers along the first path; and

allocating the reserved bandwidth among a plurality of application sessions, each of which is between one of a first plurality of communication devices coupled to the first media aggregation device and one of a second plurality of communication devices coupled to the second media aggregation device.

99. (Previously presented) The non-transitory machine-readable storage medium of claim 98, wherein the established reservation protocol session is a resource reservation protocol (RSVP) session.

100. (Previously presented) The non-transitory machine-readable storage medium of claim 98, wherein said allocating includes:

receiving a request for an amount of bandwidth from one of the plurality of application sessions; and

in response to determining that the requested amount of bandwidth is available along the first path, allocating the requested amount of bandwidth to the application session.

101. (Previously presented) The non-transitory machine-readable storage medium of claim 98, wherein the program further permits a user to request that the established reservation protocol session be torn down after the reservation protocol session has been established, and wherein the operations further comprise:

receiving, from the program, an additional request to tear down the established reservation protocol session; and

in response to receiving the additional request, tearing down the established reservation protocol session.

102. (Previously presented) The non-transitory machine-readable storage medium of claim 98, wherein one of the plurality of application sessions is an Internet telephony session.

103. (Previously presented) The non-transitory machine-readable storage medium of claim 84, wherein the first and second network devices are configured to:

receive requests from the first and second sets of local applications to communicate via the first path; and

in response to the received requests, allocate the reserved bandwidth among the first and second sets of local applications.

104. (Previously presented) A computer system comprising:

a processor; and

a machine-readable storage medium having stored thereon instructions execution of which by the processor causes the computer system to perform operations comprising:

displaying, via a graphical user interface (GUI), a representation of a network including a first network device and a second network device, wherein the first and second network devices are configured to:

establish a single reservation protocol session that reserves bandwidth from a plurality of routers along a first of a plurality of paths between the first and second network devices;

allocate the reserved bandwidth among a plurality of application sessions, each of which is between one of a first plurality of communication devices coupled to the first network device and one of a second plurality of communication devices coupled to the second network device;

displaying, via the GUI, a first projected link utilization illustrating predicted bandwidth usage for the plurality of routers along the first path; and

in response to receiving input via the GUI selecting the first projected link utilization, instructing the first and second network devices to establish the single reservation protocol session by reserving bandwidth from each of the plurality of routers along the first path.

105. (Previously presented) The computer system of claim 104, wherein the established reservation protocol session is a resource reservation protocol (RSVP) session.

106. (Previously presented) The computer system of claim 104, wherein the operations further include displaying one or more additional projected link utilizations illustrating predicted bandwidth for a plurality of additional routers along one or more others of the plurality of paths, wherein the first projected link utilization and the one or more additional projected link utilizations are displayed in a prioritized order based upon one or more factors.

107. (Previously presented) The computer system of claim 104, wherein the operations further include:

after the reservation protocol session has been established, receiving additional input via the GUI requesting that the established reservation protocol session be de-allocated; and

in response to receiving the additional input, instructing the first and second network devices to de-allocate the established reservation protocol session.

108. (Previously presented) A system comprising:

a first one or more hardware components including means for displaying, via a graphical user interface (GUI), a representation of a network including a first network

device and a second network device, wherein the first and second network devices are configured to:

establish a single reservation protocol session that reserves bandwidth from a plurality of routers along a first of a plurality of paths between the first and second network devices;

allocate the reserved bandwidth among a plurality of application sessions, each of which is between one of a first plurality of communication devices coupled to the first network device and one of a second plurality of communication devices coupled to the second network device;

the first one or more hardware components further including means for displaying, via the GUI, a first projected link utilization illustrating predicted bandwidth usage for the plurality of routers along the first path; and

a second one or more hardware components including means for instructing, in response to receiving input via the GUI selecting the first projected link utilization, the first and second network devices to establish the single reservation protocol session by reserving bandwidth from each of the plurality of routers along the first path.

109. (Previously presented) The system of claim 108, wherein the established reservation protocol session is a resource reservation protocol (RSVP) session.

110. (Previously presented) The system of claim 108, wherein the first one or more hardware components further include means for displaying one or more additional projected link utilizations illustrating predicted bandwidth for a plurality of additional

routers along one or more others of the plurality of paths, wherein the first projected link utilization and the one or more additional projected link utilizations are displayed in a prioritized order based upon one or more factors.

111. (Previously presented) The system of claim 108, wherein the first one or more hardware components further include means for receiving, after the reservation protocol session has been established, additional input via the GUI requesting that the established reservation protocol session be de-allocated, and wherein the second one or more hardware components further include means for instructing, in response to receiving the additional input, the first and second network devices to de-allocate the established reservation protocol session.

112. (Previously presented) A method comprising:
receiving, at a first media aggregation device within a network, a request from a computer system to establish a single reservation protocol session between the first media aggregation device and a second media aggregation device within the network, wherein the request is received from a program running on the computer system that displays, via a graphical user interface (GUI), a projected link utilization illustrating predicted bandwidth usage for a plurality of routers along a first path of a plurality of paths between the first and second media aggregation devices, and wherein the program permits a user to select, via the GUI, the projected link utilization in order to cause the reservation protocol session to be established;

in response to receiving the request, establishing the single reservation protocol session by reserving bandwidth from a plurality of routers along the first path; and
allocating the reserved bandwidth among a plurality of application sessions, each of which is between one of a first plurality of communication devices coupled to the first media aggregation device and one of a second plurality of communication devices coupled to the second media aggregation device.

113. (Previously presented) The method of claim 112, wherein the established reservation protocol session is a resource reservation protocol (RSVP) session.

114. (Previously presented) The method of claim 112, wherein said allocating includes:

receiving a request for an amount of bandwidth from one of the plurality of application sessions; and

in response to determining that the requested amount of bandwidth is available along the first path, allocating the requested amount of bandwidth to the application session.

115. (Previously presented) The method of claim 112, wherein the program further permits a user to request that the established reservation protocol session be torn down after the reservation protocol session has been established, and wherein the method further comprises:

receiving, from the program, an additional request to tear down the established reservation protocol session; and

in response to receiving the additional request, tearing down the established reservation protocol session.

116. (Previously presented) The method of claim 112, wherein one of the plurality of application sessions is an Internet telephony session.

117. (Previously presented) A first media aggregation device comprising:
a processor; and
a machine-readable storage medium having stored thereon instructions execution of which by the processor causes the computer system to perform operations comprising:
receiving a request from a computer system to establish a single reservation protocol session between the first media aggregation device and a second media aggregation device within a network, wherein the request is received from a program running on the computer system that displays, via a graphical user interface (GUI), a projected link utilization illustrating predicted bandwidth usage for a plurality of routers along a first path of a plurality of paths between the first and second media aggregation devices, and wherein the program permits a user to select, via the GUI, the projected link utilization in order to cause the reservation protocol session to be established;

in response to receiving the request, establishing the single reservation protocol session by reserving bandwidth from a plurality of routers along the first path; and

allocating the reserved bandwidth among a plurality of application sessions, each of which is between one of a first plurality of communication devices coupled to the first media aggregation device and one of a second plurality of communication devices coupled to the second media aggregation device.

118. (Previously presented) The first media aggregation device of claim 117, wherein said allocating includes:

receiving a request for an amount of bandwidth from one of the plurality of application sessions; and

in response to determining that the requested amount of bandwidth is available along the first path, allocating the requested amount of bandwidth to the application session.

119. (Previously presented) A first media aggregation device comprising:

a first one or more hardware components including means for receiving a request from a computer system to establish a single reservation protocol session between the first media aggregation device and a second media aggregation device within a network, wherein the request is received from a program running on the computer system that displays, via a graphical user interface (GUI), a projected link utilization illustrating

predicted bandwidth usage for a plurality of routers along a first path of a plurality of paths between the first and second media aggregation devices, and wherein the program permits a user to select, via the GUI, the projected link utilization in order to cause the reservation protocol session to be established;

a second one or more hardware components including means for establishing, in response to receiving the request, the single reservation protocol session by reserving bandwidth from a plurality of routers along the first path; and

a third one or more hardware components including means for allocating the reserved bandwidth among a plurality of application sessions, each of which is between one of a first plurality of communication devices coupled to the first media aggregation device and one of a second plurality of communication devices coupled to the second media aggregation device.

120. (Previously presented) The first media aggregation device of claim 119, wherein said allocating includes:

receiving a request for an amount of bandwidth from one of the plurality of application sessions; and

in response to determining that the requested amount of bandwidth is available along the first path, allocating the requested amount of bandwidth to the application session.

121. (Previously presented) A non-transitory machine-readable storage medium having stored thereon instructions execution of which, by a computing device, causes the computing device to perform operations comprising:

displaying, via a graphical user interface (GUI), a graphical representation of a network including a first media aggregation manager and a second media aggregation manager, wherein the first and second media aggregation managers are configured to:

establish a single reservation protocol session that reserves bandwidth from a plurality of routers along a first of a plurality of paths between the first and second media aggregation managers;

allocate the reserved bandwidth among a plurality of application sessions, each of which is between one of a first plurality of communication devices coupled to the first media aggregation manager and one of a second plurality of communication devices coupled to the second media aggregation manager; and

in response to receiving input via the GUI requesting to de-allocate the single reservation protocol session that has been established between the first and second media aggregation managers, instructing the first and second media aggregation managers to de-allocate the established single reservation protocol session;

wherein the single reservation protocol session has been established in response to input received via the GUI selecting a projected link utilization illustrating predicted bandwidth usage for the plurality of routers along the first of the plurality of paths.

122. (Previously presented) The non-transitory machine-readable storage medium of claim 121, wherein the single reservation protocol session is a resource reservation protocol (RSVP) session.

123. (Canceled).

124. (Currently amended) A method comprising:

receiving, at a first media aggregation device within a network, a request to de-allocate an established single reservation protocol session between the first media aggregation device and a second media aggregation device within the network, wherein the established single reservation protocol session reserves bandwidth from a plurality of routers along a path of a plurality of paths between the first and second media aggregation devices, wherein a graphical user interface (GUI) presents a projected link utilization illustrating predicted bandwidth usage for the plurality of routers along the path, and wherein the user selects, via the GUI, the projected link utilization in order to cause the established single reservation protocol session to have been established, and wherein the request to de-allocate is received via the GUI that presents a representation of the network including the first and second media aggregation devices, and wherein a user selects, via the GUI, the established single reservation protocol session from the representation of the network; and

in response to receiving the request to de-allocate, instructing the first and second media aggregation devices to de-allocate the established single reservation protocol session.

125. (Canceled).

126. (Currently amended) A first media aggregation device comprising:

a processor; and

a machine-readable storage medium having stored thereon instructions execution of which by the processor causes the first media aggregation device to perform operations comprising:

receiving a request to de-allocate an established single reservation protocol session between the first media aggregation device and a second media aggregation device within a network, wherein the established single reservation protocol session reserves bandwidth from a plurality of routers along a path of a plurality of paths between the first and second media aggregation devices, and wherein the request to de-allocate is received via a graphical user interface (GUI) that presents a representation of the network including the first and second media aggregation devices, and wherein the user selects, via the GUI, the established reservation protocol session from the representation of the network; and

in response to receiving the request to de-allocate, instructing the first and second media aggregation devices to de-allocate the established single reservation protocol session;

wherein the GUI presents a projected link utilization illustrating predicted bandwidth usage for the plurality of routers along the path, and wherein the user

selects, via the GUI, the projected link utilization in order to cause the established single reservation protocol session to have been established.

127. (Canceled).